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TITLE: STAINLESS STEEL MATERIAL EXCELLENT IN NEUTRON-ABSORPTION CAPACITY AND ITS PRODUCTION

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ABSTRACT:
PURPOSE: To develop a stainless steel remarkably excellent in neutron-absorption capacity, having superior hot workability, cold workability and secondary operation properties and further excellent in castability, mechanical properties, corrosion resistance and weldability by adding specific elements excellent in neutron- absorption capacity, such as Gd and the like, to a stainless steel.

CONSTITUTION: As a stainless steel having superior neutron-absorption capacity
for use in a neuclear reactor and facilities for manufacture, handing, transportation, storage and waste disposal of nuclear fuel, a stainless steel ingot having a composition containing, by weight, 0.1∼3.0% Gd, 0.01∼0.15% C, <1.5% Si, <2.0% Mn, <0.045% P, <0.03% S, 7∼35% Ni, 15∼30% Cr, <5% Mo, <1% Ti, <2% Nb and <0.3% N or further containing <0.1%

Co is used. The above stainless steel ingot is heated to
1.050∼1.150°C
and a Gd-rich phase is dispersed finely and uniformly by a single hot or cold working, so that property of secondary operation to products, ductility, toughness and weldability can be improved.